Load, Scan and Restart Load Functions

Load and Scan

Load

You use the Load function to load source code objects. The Load function performs the following:

- loads data from the work file into any system environment;
- if requested, converts the data from ASCII to EBCDIC or from EBCDIC to ASCII;
- gives you the option to load free rules into Predict.

Scan

You use the Scan function to scan for source code objects in Work File 1 without actually loading them.

When you invoke the Load or Scan function, you first have to specify General Options before you can select the objects to be loaded or scanned.

Below is information on:

General Load/Scan Options

To specify any of the following General Load or Scan Options

- In CUI environments:
  Enter a Y (Yes) or an N (No).
- In GUI environments:
  Select the corresponding option.
  Or choose a button.

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The following options are provided:

Option	Explanation
User-Defined Conversion Table	If data conversion is required by your target environment: If you set this option and have specified your own conversion table in the program SULCONV, all data are converted using this conversion table. If you do **not** set this option, all data are converted using a conversion table that is internally defined. **Load only:** If no data conversion is required by your target environment: CUIs: If you specify F (Force), a table is used that only replaces characters, which means that no actual data conversion takes place. GUIs: See Use ASCII-ASCII Conversion Table below.
	See User-Defined Conversion Table below for more information on defining your own conversion table in the program SULCONV.
Use ASCII-ASCII Conversion Table	**Windows only.** Not applicable to the Scan. This option applies if no data conversion is required by your target environment. If you set this option, a table is used that only replaces ASCII characters, which means that no actual data conversion takes place.
Report	This option is not applicable to the Scan. The Scan generates reports automatically. Displays a report listing the objects that were loaded.
Translate Sources to Upper Case	Not applicable to the Scan. Translates any source code to be loaded to upper case.
Save Restart Information	Not applicable to the Scan. Saves restart information while loading. This information can be used to if it has been terminated abnormally; see the section Restart Load Function.
Modify Library Names	Not applicable to the Scan. Enables modification of library name(s) specified as To Library before the actual load operation begins (see also New Library Name below). CUIs: Enter a Y. After you have made all necessary specifications for the items to be loaded, a window is displayed in which you can specify a new library name. GUIs: Select the option and the New Library Name text box appears within each load function dialog box, and you can specify new library names.
Work File Name	**Not applicable to mainframes.** Specifies a work file name. See Load Work File Specifications for more information on defining work files. **Note for OpenVMS and UNIX:** To enter a work file name longer than 35 and up to 253 characters, you must invoke the help function for the Work File Name field.
Browse...	**Windows only.** Invoke a work file selection facility with a corresponding dialog box.

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Option	Explanation
Use Entire Connection Work File	**Not applicable to Windows.** Uploads or scans all data from Work File 7. When using this option, Entire Connection is required, and Work File 7 must have been defined as Entire Connection work file in your parameter file. **Note for UNIX and OpenVMS:** Since Entire Connection work file usage does not allow any other screen I/Os, the resulting report (see also the Report option above) is written to Work File 4 and will not be displayed until the end of the load or scan operation.

GUIs:

Apart from Report, Translate Sources to Upper Case, and Modify Library Names, all General Load/Scan Options can only be specified once at the beginning of each load session.

New Library Name

If the Modify Library Names option is set, the following applies to the new target library name:

If you have specified a range as library to be loaded, the New Library Name may be a range too, but the number of characters before the asterisk (*) **must not** exceed the number of characters before the asterisk in the Library field.

User-Defined Conversion Table

In the library SYSTRANS, there is the program SULCONV with which you can define your own conversion tables. In this program, you can replace any character to match your hardware environment.

Example:

The following steps are an example of how the EBCDIC character **a** can be converted to the ASCII character **A**:

1. Find out the decimal representation of the EBCDIC character **a**. In this case, the decimal representation of the EBCDIC character **a** is 129.
2. Find out the decimal representation of the ASCII character **A**. In this case, the decimal representation of the ASCII character **A** is 65.
3. Replace the value located at the 129th position of the table BEBCA with 65.

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Objects to be Loaded/Scanned

Once you have specified the General Load/Scan Options, a menu is displayed on which you select one of the below object types to be loaded or scanned. In Windows environments, the Objects to be Loaded/Scanned are displayed in the right-hand section of the same menu.

- Natural Objects
- Maps
- DDMs
- Adabas FDTs
- Error Message Texts
- Command Processors
- Library
- All Objects

Loading/Scanning Natural Objects

If you select Natural Objects as the type of objects to be loaded or scanned, you can make the following specifications:

S/C Type	For future use; nothing can be specified at the moment.
Library	The library to be loaded or scanned. If you specify no library, all libraries are loaded or scanned. You can specify a group of libraries by using asterisk notation (*). You can only specify a library that has been specified as target library with the Unload function. If no target library has been specified, the name of the library specified as From Library is used. If the Modify Library Names option (see General Load/Scan Options) is set, you can enter a new library name before the actual load operation begins (GUIs: see also New Library Name below).
Object Name	The name of the object to be loaded or scanned. See also Name and Range Specification in the section Introduction.
Object Type	The type(s) of object(s) to be loaded or scanned.
Replace	Not applicable to the Scan. If you specify Y (GUIs: Yes) and a source with the same name as the one you are loading already exists in the target environment, the target source is replaced.
New Library Name	**GUIs only.** Not applicable to the Scan. The name of the new target library. If the Modify Library Names option (see General Load/Scan Options) is set, the name of the specified target library can be modified here; see also Library above. If not, the New Library Name text box is not available.

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Loading/Scanning Maps

If you select Maps as the type of objects to be loaded or scanned, you can make the following specifications:

S/C Type	For future use; nothing can be specified at the moment.
Library	The library to be loaded or scanned. If you specify no library, all libraries are loaded or scanned. You can specify a group of libraries by using asterisk notation (*). You can only specify a library that has been specified as target library with the Unload function. If no target library has been specified, the name of the library specified as From Library is used. If the Modify Library Names option (see General Load/Scan Options) is set, you can enter a new library name before the actual load operation begins (GUIs: see also New Library Name below).
Map Name	The name of the map to be loaded or scanned for. See also Name and Range Specification in the section Introduction.
Load Free Rules to Predict	Not applicable to the Scan. If you specify Y (Yes), all free rules on the work file are loaded to Predict.
Replace	Not applicable to the Scan. If you specify Y (GUIs: Yes) and a map with the same name as the one you are loading already exists in the target environment, the target map is replaced.
New Library Name	**GUIs only.** Not applicable to the Scan. The name of the new target library. If the Modify Library Names option (see General Load/Scan Options) is set, the name of the specified target library can be modified here; see also Library above. If not, the New Library Name text box is not available.

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Loading/Scanning DDMs

If you select DDMs as the type of objects to be loaded or scanned, you can make the following specifications:

DDM Name	The name of the DDM to be loaded or scanned for. See also Name and Range Specification in the section Introduction.
Library	The name of the library to be loaded or scanned. Only to be used if your target environment is OpenVMS, UNIX or Windows. You can only specify a library that has been specified as target library with the Unload function. If no library is specified, the following applies to the load procedure: ● If the DDMs are unloaded from a mainframe environment, all DDMs will be automatically loaded into the library SYSTEM. ● If the DDMs are unloaded from any other environment, the name of the library specified as From Library will be used. Scan: If you specify no library, all DDMs are scanned. If the Modify Library Names option (see General Load/Scan Options) is set, you can enter a new library name before the actual load operation begins (GUIs: see also New Library Name below).
Replace	Not applicable to the Scan. If you specify Y (GUIs: Yes) and a DDM with the same name as the one you are loading already exists in the target environment, the target DDM is replaced.
New Library Name	**GUIs only.** Not applicable to the Scan. The name of the new target library. If the Modify Library Names option (see General Load/Scan Options) is set, the name of the specified target library can be modified here; see also Library above. If not, the New Library Name text box is not available.

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Loading/Scanning Adabas FDTs

If you select Adabas FDTs as the type of objects to be loaded or scanned, you can make the following specifications:

DBID	The database ID of the Adabas FDT you want to load or scan.
FNR	The file number of the Adabas FDT you want to load or scan.
Replace	Not applicable to the Scan. If you specify Y (GUIs: Yes) and an FDT with the same DBID and FNR as the one you are loading already exists in the target environment, the target FDT is replaced.

If DBID and FNR are left blank or set to **0**, all FDTs on the work file are loaded.

Note for UNIX, OpenVMS and Windows:
All FDTs are written to Work File 5, which you then can use as input for the Adabas utility ADAFDU.

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Loading/Scanning Error Message Texts

If you select Error Message Texts as the type of objects to be loaded or scanned, you can make the following specifications:

Message Type	The type of error messages to be loaded or scanned for: **CUIs** **GUIs** U User User-defined error messages N System Natural error messages * All All error messages
Library	The library to be loaded or scanned. If you specify no library, all libraries are loaded or scanned. You can specify a group of libraries by using asterisk notation (*). You can only specify a library that has been specified as target library with the Unload function. If no target library has been specified, the name of the library specified as From Library is used. If the Modify Library Names option (see General Load/Scan Options) is set, you can enter a new library name before the actual load operation begins (GUIs: see also New Library Name below).
Message Number	The range of error message numbers to be loaded or scanned.
Language Code	The language code of the error messages to be loaded or scanned; for valid codes, see the *LANGUAGE system variable in the Natural Programming Reference documentation.
Replace	Not applicable to the Scan. If you specify Y (GUIs: Yes) and a message with the same number as the one you are loading already exists in the target environment, the target message is replaced.
New Library Name	**GUIs only.** Not applicable to the Scan. The name of the new target library. If the Modify Library Names option (see General Load/Scan Options) is set, the name of the specified target library can be modified here; see also Library above. If not, the New Library Name text box is not available.

Note:
For Natural error messages, you need not specify a library, because they are always loaded into the FNAT system file or the error messages subdirectory.

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Loading Command Processors

If you select Command Processors as the type of objects to be loaded or scanned, you can make the following specifications:

Library	The library to be loaded or scanned. If you specify no library, all libraries are loaded or scanned. You can specify a group of libraries by using asterisk notation (*). You can only specify a library that has been specified as target library with the Unload function. If no target library has been specified, the name of the library specified as From Library is used. If the Modify Library Names option (see General Load/Scan Options) is set, you can enter a new library name before the actual load operation begins (GUIs: see also New Library Name below).
Object Name (GUIs: NCP Name)	The name of the command processor to be loaded or scanned. See also Name and Range Specification in the section Introduction.
Replace	Not applicable to the Scan. If you specify Y (GUIs: Yes) and a source with the same name as the one you are loading already exists in the target environment, the target source is replaced.
New Library Name	**GUIs only.** Not applicable to the Scan. The name of the new target library. If the Modify Library Names option (see General Load/Scan Options) is set, the name of the specified target library can be modified here; see also Library above. If not, the New Library Name text box is not available.

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Loading/Scanning Libraries

If you select Library as the type of objects to be loaded or scanned, you can make the following specifications:

CUIs	GUIs	Explanation
Library	Library	The library to be loaded or scanned. If you specify no library, all libraries are loaded or scanned. You can specify a group of libraries by using asterisk notation (*). You can only specify a library that has been specified as target library with the Unload function. If no target library has been specified, the name of the library specified as From Library is used. If the Modify Library Names option (see General Load/Scan Options) is set, you can enter a new library name before the actual load operation begins (GUIs: see also New Library Name below).
Load/Scan Natural Objects	Natural Objects	Indicates whether the Natural objects unloaded for the specified library are to be loaded or scanned. Enter a Y for yes (CUIs) or select the corresponding option (GUIs) to load Natural objects.
Range of Natural Objects	Name Range	The name of the object to be loaded or scanned. See also Name and Range Specification in the section Introduction.
Types of Natural Objects	Types	The type(s) of the object(s) to be loaded or scanned.
Load/Scan Maps	Maps	Indicates whether the maps unloaded for the specified library are to be loaded or scanned. Enter a Y (CUIs) or select the corresponding option (GUIs) to load maps.
Range of Maps	Name Range	The name of the map to be loaded or scanned. See also Name and Range Specification in the section Introduction.
Load/Scan DDMs	DDMs	Indicates whether the DDMs unloaded for the specified library are to be loaded or scanned on OpenVMS, UNIX and Windows. On mainframes, all DDMs on the work file are affected. Enter a Y (CUIs) or select the corresponding option (GUIs) to load DDMs.
Range of DDMs	DDM Range	The name of the DDM to be loaded or scanned. See also Name and Range Specification in the section Introduction.
Load/Scan Error Messages	Error Message Texts	Indicates whether the error message texts unloaded for the specified library are to be loaded or scanned. Enter a Y (CUIs) or select the corresponding option (GUIs) to load or scan error messages.
Message Number	Number from . . . to	The range of error message numbers to be loaded or scanned.

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CUIs	GUIs	Explanation
Language Code	Language Code	The language code of the error messages to be loaded or scanned. For valid codes, see the system variable *LANGUAGE in the Natural Programming Reference documentation.
Load/Scan Command Processors	Command Processors	Indicates whether the Command Processors unloaded for the specified library are to be loaded or scanned. Enter a Y (CUIs) or select the corresponding option (GUIs) to load or scan for DDMs.
Range of Command Processors	Name Range	The name of the command processor to be loaded or scanned. See also Name and Range Specification in the section Introduction.
Replace	Replace	Not applicable to the Scan. If you specify Y (GUIs: Yes) and a source with the same name as the one you are loading already exists in the target environment, the target source is replaced.
	New Library Name	**GUIs only.** Not applicable to the Scan. The name of the new target library. If the Modify Library Names option (see General Load/Scan Options) is set, the name of the specified target library can be modified here; see also Library above. If not, the New Library Name text box is not available.

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Loading/Scanning All Objects

Scan

If you select All Objects (that is, if you want to scan for all objects on the work file), no further parameters need to be specified.

Load

If you select All Objects for loading (that is, if you want to load all objects contained on the work file), you can specify the following:

Replace	If you specify Y (GUIs: Yes) and an object with the same name as the one you are loading already exists in the target environment, the target object is replaced.
New Library Name	**GUIs only.** The name of the new target library. If the Modify Library Names (see General Load/Scan Options) is set, the name of the specified target library can be modified here. If not, the New Library Name text box is not available.

CUIs:
All objects on the work file are loaded into the target libraries as specified with the Unload function, unless you have set the Modify Library Names (see General Load/Scan Options) option. If so, a second window is displayed, in which you can enter a new library name.

Note for OpenVMS, UNIX and Windows:
For Adabas FDTs, the Load All Objects function uses an additional work file.

For more information on defining work files, see the section Load Work File Specifications.

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Loading in Batch Mode under OS/390

The following example shows a JCL procedure which you can use to load your programs and maps:

```
//************************************************
//*
//*     LOAD NATURAL SOURCES
//*
//************************************************
//TRANSFER  JOB CLASS=G,MSGCLASS=X
//NATBAT  EXEC PGM=NATBAT,REGION=3000K,
          PARM='IM=D,MADIO=0,MT=0'
//STEPLIB  DD DISP=SHR,DSN=NATURAL.LOAD
//         DD DISP=SHR,DSN=ADABAS.LOAD
//CMPRINT  DD SYSOUT=X
//DDCARD   DD  *
ADARUN PROG=USER, DB=010,MODE=MULTI,SVC=249
//CMWKF01  DD DISP=SHR,DSN=WORK.FILE1
//CMSYNIN  DD  *
SYSTRANS
L
N,Y,N,N,Y,N
*
N
NEWLIBS
FIN
/*
```

Note:
As shown in the above example, do not specify the S/C Type field when loading Natural objects, because the S/C Type field is an output field only.

Loading in Batch Mode under OpenVMS

The following example shows a DCL procedure which you can use to load your programs and maps:

```
$  ON ERROR THEN GOTO _error_exit
$  natb := $NATBIN:NATURAL.EXE
$
$  work_dir := mydevice:[mydirectory]
$
$  DEFINE NATOUTPUT  SYS$OUTPUT               ! Will be written to the log file
$!
$! Assuming that in the parameter module mytrans, the Work Files 1-4 were
$! assigned to NATWORK01-4
$!
$  DEFINE NATWORK01  'work_dir'natwork01.dat
$  DEFINE NATWORK03  'work_dir'natwork03.dat
$  DEFINE NATWORK04  'work_dir'natwork04.dat
$
$  natb batch parm=mytrans stack=(TRANSCMD LOAD ALL WHERE NEW-LIBRARY NEWLIBS)
$
$_error_exit:
$  EXIT
```

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Loading in Batch Mode under UNIX

The following example shows a UNIX batch procedure which you can use to load your Natural objects (besides maps and DDMs), assuming that in the parameter module mytrans, the Work Files 1, 3 and 4 were assigned to the names of your work files:

```
natb batch parm = mytrans stack = "(TRANSCMD LOAD ALL WHERE NEW-LIBRARY NEWLIBS)"
```

User Exits for Loading in Batch Mode

Two user exits with which you can handle errors when loading in batch mode are provided in source form under the names SLD-S-X1 and SLD-S-X2. To be invoked, both must be available as cataloged objects under the names SLDEXIT1 and SLDEXIT2 in the library SYSTRANS.

SLDEXIT1 is invoked if an error occurs that leads to an abnormal termination. It allows you to define a return code.

SLDEXIT2 is invoked in the case of error messages or warnings. If it returns a non-zero return code, the load operation is abnormally terminated; otherwise processing is continued.

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Load Work File Specifications

The following work files are used for loading:

Mainframes

Work File 1	The file from which the data are loaded.
Work File 4	The file into which the load report is written when using the Direct Transfer Functions.

Use the following JCL parameter values to specify the work file:

Parameter	Value
LRECL	96
RECFM	VB
BLKSIZE	6240

OpenVMS, UNIX and Windows

Work File 1	The file from which the data are loaded; it must have a record length of 96. If this work file is transferred via tape, use the UNIX command **dd** to get the record correctly blocked.
Work File 4	The file into which the load report is written when using the Direct Transfer Functions as described below.
Work File 5	The file which is used to load the FDTs for further processing.
Work File 6	The file which is used to save the restart information.
Work File 7	**Not applicable to Windows.** The file (in Entire Connection format) from which the data are uploaded when specifying the option "Use Entire Connection Work File".

All work files must be of ASCII format. To achieve this, a file extension must be used, but not the file extension ".sag".

Natural Parameter Settings

To be able to use the Load function, set the following Natural parameters:

Parameter	Mainframe	OpenVMS	UNIX	Windows
MT	0	0	---	---
MADIO	0	0	0	0
MAXCL	0	0	0	0

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Restart Load

You use the Restart Transfer Load function to resume a load operation that has been terminated abnormally.

To be able to use this function, the load option Save Restart Information must have been set (see General Load/Scan Options). If so, the necessary restart information (that is, the work file header and all relevant load parameters) is saved either in a Natural text object called LOAD-LOG (on mainframes) or on work file 6 (in all other environments).

When you invoke the Restart Transfer Load function, you first have to specify the following general restart options:

Work File Name	Here you can specify a work file name. **Note:** This option does not appear in a mainframe environment. To enter a work file name longer than 35 and up to 253 characters, you must invoke the help function for the Work File Name field.
Browse...	**Windows only.** If you choose this button, a work file selection facility is invoked with a corresponding dialog box.
Use Entire Connection Work File	**Not applicable to Windows.** Enter Y (Yes) if the data to be loaded are to be uploaded from work file 7. When using this option, Entire Connection is required, and Work File 7 must have been defined as Entire Connection work file in your parameter file.

The Restart Load function checks whether the work file header stored as part of the restart information corresponds to that of the work file to be (re)loaded.

- If so, the Restart Load function resumes the previously terminated load operation.
- If not, the Restart Load function cannot be performed and a corresponding message is displayed. The same applies if you select the Restart Load function without the Save Restart Information option set to Y.

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